

PURPLAN®

反应设备 *Reactors*

料罐设备

Tank farms

混料技术

Mixing/blending technology

人造树脂反应设备

Resin reaction

热工和冷工技术

Heating and cooling plants

工程技术设备

Pilot plants

配量设备

Dosing systems

自动化技术

Automation technology

工程技术

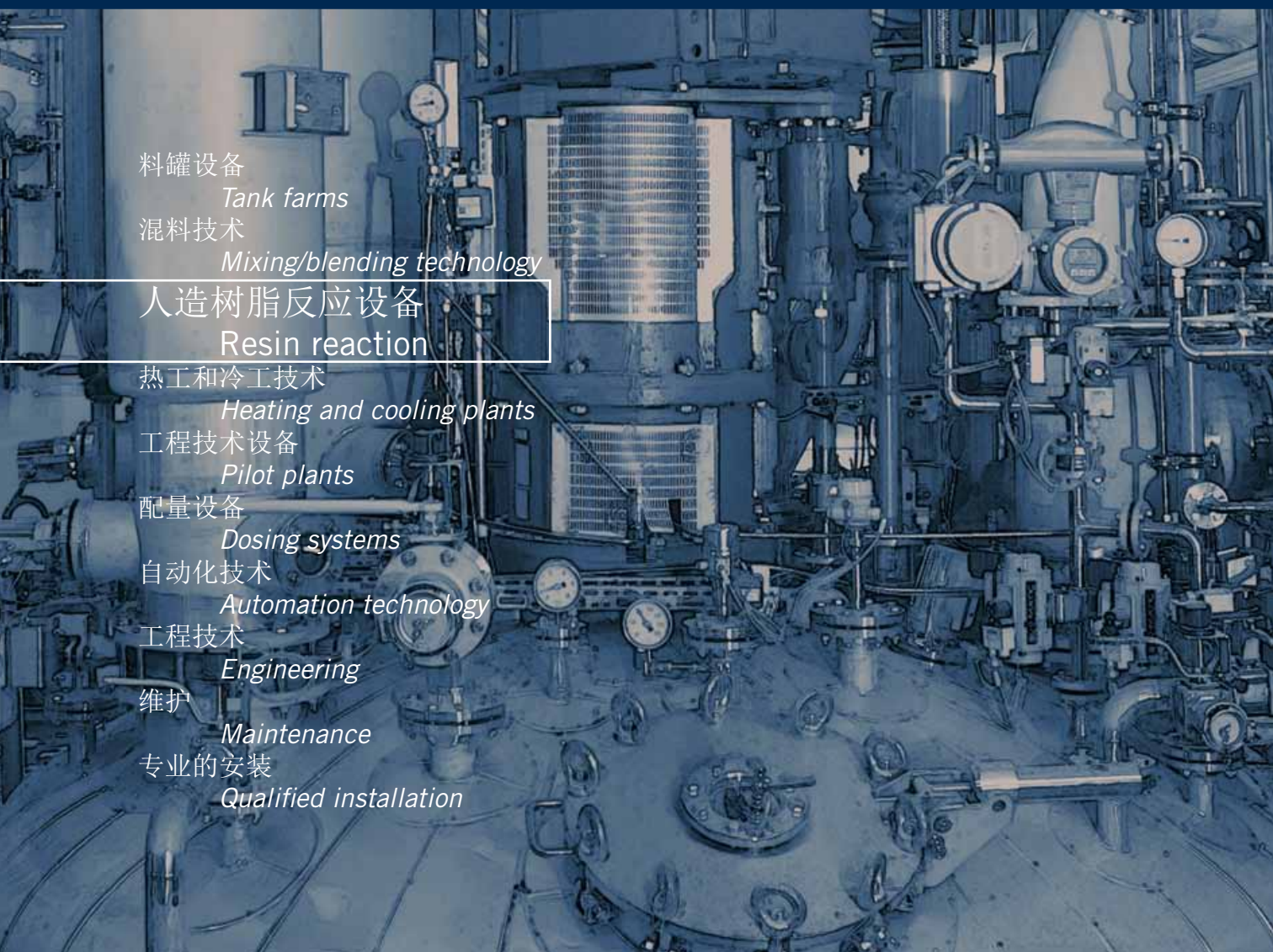
Engineering

维护

Maintenance

专业的安装

Qualified installation



包括 *Content*

1. 醇酸树脂和聚酯树脂设备
2. 酚醛树脂设备
3. 聚合设备
4. 全集成的过程控制
5. 热回收式热力焚烧系统

Alkyd- and polyester-resin-systems
Phenolic resin plants
Polymerisation plants
Integrationable process control
Thermal afterburning system

我们将经验和专业知识与新的解决方案相结合。

We combine experience and know-how to new solutions.

“我们不遵循标准,我们建立新的标准”——这一企业理念指引着我们的行动。这是树脂设备制造创新的基础并总是和我们的名字紧密地联系在一起。

„We do not follow any standard, we put them in“ – this corporate philosophy determines our actions. This is the basis for innovation in the resin plant construction which is always closely associated with our company.

我们的客户要求很严格。我们也是。 ***Our customers have high expectations. We too.***

在所有领域,我们针对实际情况灵活的作出反应并始终遵循客户的要求。只有这样我们才能更好的认识设计方案和实际运用之间的关系,以使解决方案能更有效运行。可靠性程度高是对我们工作方式的准确诠释。我们尽一切努力确保我们的客户在未来的竞争中也能取胜。毫无疑问,我们将坚持让严格的质量标准来引领我们。

In all fields of activity we respond flexible, practical and always matched on the requested requirements. That's why we recognize conceptual relationships which are the basis for solutions that work perfectly. A high degree of reliability characterizes our way of operating. We do everything that makes our customers competitive in the future. No question that we are guided by the highest quality requirements.

醇酸树脂和聚酯树脂设备

Alkyd- and Polyester-Resin-Systems

为了能够在充分提高生产效率的同时确保产品的高品质,普尔潘单独针对客户就醇酸树脂和聚酯树脂设备的具体外形和运用场合的要求进行论证。醇酸树脂和聚酯树脂被用在很多涂料系统中,作为粘合剂用于涂料的改性。在醇酸树脂生产中我们的设备技术既能够确保1阶段脂肪酸过程同时也能确保2阶段的酯交换过程。进料系统的设计使得原材料可以快速重复的添加。一种根据聚酯树脂制造需要所改进的设备技术能够确保最佳的产品产率,从而使得普尔潘的醇酸树脂和聚酯树脂设备能够作为多功能综合系统被使用。

In order to ensure an efficient production process with high product quality, PUR-PLAN Alkyd- and Polyester-resin-systems are individually tailored to the requirements and the application of the customer. Alkyd resins and polyester resins are used in many modifications as binders in coating systems. Our systems ensure the production of alkyd resins as well as the one-stage fatty acid production or the two-stage trans-esterification process. The design of the loading system allows a rapid and reproducible raw material filling. A system, modified to the needs of the polyester resin manufacturing plant technology guarantees optimum product yield, so that the PURPLAN Alkyd- and Polyester-resin-systems can be used as multifunctional synthesis systems.



酚醛树脂设备 *Phenolic resin plants*

酚醛树脂通常被用作浸渍树脂或层压树脂。更多的应用包括在刨花板制造或模塑制品的生产中作为粘合剂，例如在铸造行业。甚至可以运用苯酚和甲醛的缩聚物作为涂料树脂用于不同涂料的改性。普尔潘酚醛树脂设备可以在分批过程以及酸性或碱性催化的一锅法条件下工作。安全技术设计基于反应量热数据，确保一个封闭的生产过程。通过相应的真空和搅拌技术来实现较低的苯酚残留。通过修改设备技术可以用精确的温度和pH值的自动控制实现三聚氰胺或者脲-甲醛合成。

Phenolic resins are often used as impregnating or laminating resins. Other applications are the use as a binder in particle board manufacture or production of molded parts for example in the foundry industry. Even as coating resins in various modifications the polycondensation of phenol and formalin are used. The PURPLAN Phenolic resin systems can be operated acidic or basic in the feed process as well as in the one-pot process. The safety design is based on reaction calorimetry datas and ensures a closed production process. Low residual phenol contents are realized by corresponding vacuum and stirring systems. By modifying the system technology also melamine or urea-formaldehyde syntheses can be performed with precise temperature and pH control.



聚合设备

Polymerisation plants

普尔潘聚合设备能够实现在水溶液或者有机溶液中通过自由基聚合生产高分子。这些设备是根据特定配方的反应标准焓所给定的安全技术而设计的。安全设计是一个封闭的自我概念，它基于各种部分，如有机溶剂回流冷凝的最高合成温度或者使用特殊的聚合抑制剂。相关的安全电路根据IEC61508/IEC61511由符合SIL认证的电路单独来实现。进料过程中对引发剂和单体剂量的控制由高精度的自动控制回路实现。普尔潘聚合设备可以在密闭系统中完成压力聚合。专业的搅拌器设计在兼顾了配方特有的流变性质的同时确保了精确的温度控制。

The production of macromolecules by free-radical polymerization in aqueous or organic solution is done in the PURPLAN polymerisation plants. The plants will be designed to the particular safety conditions which are given by the specific formulation of the reaction enthalpy. The safety design is a closed self-concept, which is based on various components, such as the maximum synthesis temperature at the reflux condensation in organic solvents or the use of special polymerization inhibitors. Relevant safety circuits will be realized in separate SIL qualified circuits, according to IEC 61508 / IEC 61511. The production in the feed process requires high-precision control loops of initiators and Monomers. The PURPLAN polymerisation plants are also designed for pressure polymerisations which are performed in a closed system. Exact temperature control taking under consideration of the specific rheology will be realized by professional engineering of the agitator technology.



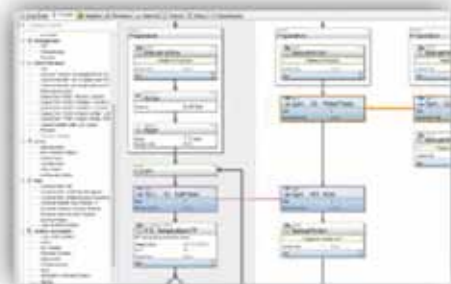
全集成的过程控制 *Integratable process control*

普尔潘的控制系统是一个结构完整的全集成过程控制系统,它集成了常用的手动操作和工厂库存控制系统,以及针对整个制造工艺过程的更高级的企业资源计划系统。在控制中心,具有各种服务功能的批量控制系统确保了制造工艺100%的可重复性。普尔潘批量系统可以使所有的鸡蛋看起来都一样。这样可以确保所有的后续增值步骤都能够基于同样可靠的工艺和产品。

The PURPLAN control technology is a fully integratable process control, which integrates existing manual processes and inventory control systems on the manufacturing side as well as higher-level ERP systems in the entire manufacturing process. In the center stands the batch control with a variety of functions which are allowing a 100% reproducibility of the process. In PURPLAN batches one egg looks like the other. All subsequent steps are based on reliable process and product.

流程介绍 *Process introduction*

- 通过直观的绘制表格或图表的形式,为可重复的流程创建全自动工作/流程介绍 *Preparation of fully automatic working / process introduction for reproducible processes through intuitive input in tabular or in graphical form*
- 对多个配方和批量使用序列控制 *Use of a control sequence for several recipes and batch sizes*
- 流程介绍在设备之间轻松传输 *Easy transfer of process introductions between plants.*



人机界面 *Visualization*

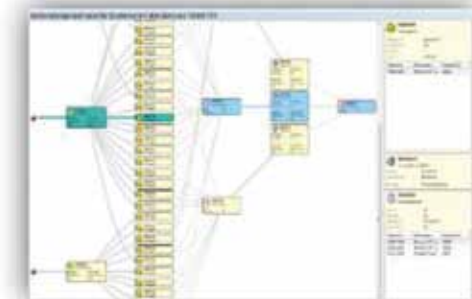


- 清晰完整的显示R&I流程图上所有相关组件 *Complete display of the R + I flow charts with all relevant components*
- 通过宏录制可视化呈现阀门路径,功能和 workflows 以及转换流程介绍,无需相应的编程知识。 *Visual preparation of valve travels, functions and processes through macro recording and conversion to process introduction without programming knowledge*
- 创建系统过程中对 workflows 进行模拟 *Simulation of sequences during the preparation of processes*

可追踪性和可重复性 . *Traceability and reproducibility*

清晰的图形式原材料追踪,从收到原材料及包装材料到最终的成品以及反过来从最终产品到所有生产过程中使用的原材料批次。 *Clearly graphical material tracking from the delivery of raw materials and packaging materials to the finished product and the other way from the finished product to the used raw material batches*

- 系统助手从各个方向跟踪材料,容器或产品 *Assistant to track materials, containers or products in any direction*
- 定义参考批次(黄金批次) *Definition of reference batches (Batch Golden)*
- 比较测量值曲线与参考曲线 *Comparison of measurement traces with reference curves*
- 图形化分析和呈现测量误差 *Graphical analysis and representation of the measurement errors*
- 更简单的在已选批次中比较已称重/已添加或计量的原材料 *Simple comparison of weighed / added or dosed raw materials from selected lots*
- 一键式批次报告包含: *One-Click Batch record with*
 - 原材料增加 *Raw material additions*
 - 原材料预订 *Raw material bookings*
 - 用户操作记录 *User actions*
 - 状态/报警事件 *Status / Alarm events*
 - 测量值 *Measurements*
 - 过程参数 *Process parameter*



热回收式热力焚烧和过程热 *Thermal afterburning system*

在生产合成树脂的过程中,即使使用气体置换法,也很难避免会有少量的废气和有机化合物蒸气泄漏。这些有害气体的量通常低于空气质量控制技术指南中所规定的量,但即使是如此少的量,未经处理而直接排放到大气中也是不允许的。

方法:

- 燃烧排放的气体
- 注射和蒸发排放的污水以及热解有害气体

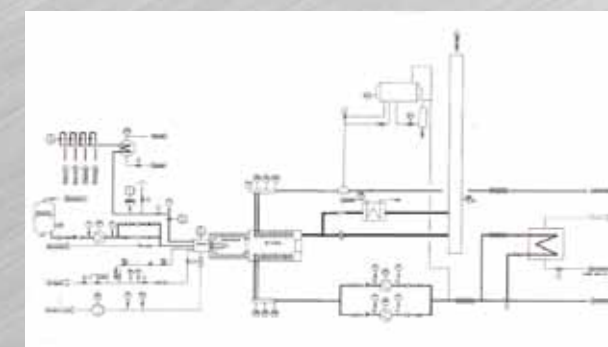
--> 产生的热量用于生产

In the manufacture of synthetic resins cannot be avoided that a small amount of gas and vaporous organic compounds will release in spite of using a vapor recovery system. The pollutant levels are often below those which are mentioned in the TA-air; however, the odor threshold of these materials is so low that an untreated discharge into the atmosphere is not permitted.

Methods:

- *Burning of the exhaust air*
- *Injection and evaporation the sewage and thermal splitting of the pollutants*

--> *With simultaneous heat supply of the production*





德国普尔潘有限公司 **PURPLAN GmbH**
Penter Straße 28
D-49134 Wallenhorst
Tel. +49 (0) 54 07 81 77-0
Fax +49 (0) 54 07 81 77-129
info@purplan.de
www.purplan.com

普尔工程技术有限公司 **PUR Ingenieur GmbH**
An der Königsburg 5
D-58285 Gevelsberg
Tel. +49 (0) 2332 5519 635
Fax +49 (0) 2332 5519 639
info@puring.de
www.puring.de

普尔潘美国公司 **PURPLAN USA Inc.**
55 Park Drive, Lawrence,
PA 15055, USA
Tel. +1 724 909 1404
info@purplan.com
www.purplan.com

上海普尔潘机械工程有限公司
**Shanghai PURPLAN
Mechanical Engineering Co. Ltd.**
Nr. 120, HuaShen Road,
Pilot Free Trade Zone
Pu Dong District,
200131 Shanghai,
P.R. China
Tel. +86 21 50137780
Fax +86 21 50137783
info-china@purplan.com
www.purplan.com.cn

代表处 **Agencies:**
南非、阿联酋、捷克共和国、匈牙利、俄罗斯
South Africa . United Arab Emirates .
Czech Republic. Hungary . Russia

更多信息敬请关注: *for more information:*
www.purplan.com

